



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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D119-796-241TRN
Job Sheet 198198



Part No: D119-796-241TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 7/23/19

Job Tracking No:

Due Date: 12/2/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG RD119-796 REV.K IPP REV A RQ 14/05/27 VERIFIED BY DD IPP REV:B 16.05.04 AS PER DWG REV.I DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier			
100	Mori Seiki TL-40 - 1	1 pcs		12/2/19	1.00	1.72	Mori Seiki TL-40 - 1			DAS 66 9-89 2019-08-11
110	QC 2	1 pcs		12/2/19	0.00	0.00	QC 2 - 1			
							QC 2 - 12			
							QC 2 - 14			
							QC 2 - 17			
							QC 2 - 19			
							QC 2 - 2			
							QC 2 - 20			
							QC 2 - 22			
							QC 2 - 23			
							QC 2 - 25			
							QC 2 - 32			
							QC 2 - 33			
							QC 2 - 35			
							QC 2 - 39			
							QC 2 - 4			
							QC 2 - 40			
							QC 2 - 44			
							QC 2 - 45			
							QC 2 - 48			
							QC 2 - 49			
							QC 2 - 50			
							QC 2 - 51			
							QC 2 - 52			
							QC 2 - 57			
							QC 2 - 62			
							QC 2 - 63			
							QC 2 - 8			DAS
							QC 2 - 66			66 9-89 2019-08-11
							QC 2 - 64			9-89

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					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	12/2/19	1.00 1.72	Mori Seiki TL-40 - 1 - B4B	DAS 662019-08-15 9-89
130	QC 2	1 pcs	12/2/19	0.00 0.00	QC 2 - 1	
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	
					QC 2 - 66	DAS 662019-08-15 9-89
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
140	QC 8	1 pcs	12/2/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	

				QC 8 - 67	
				QC 8 - 1 (A)	DAS
				QC 8 - 47	47
				QC 8 - 40	9-89
				QC 8 - 52	
				QC 8 - 23	
				QC 8 - 57	
145 Crosstubes - 2 - B4B	1 pcs	12/2/19	0.00 0.45	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	BB 9/4/2019
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	
150 Handfinish - 1-1 Chemical-B4B	1 pcs	12/2/19	0.00 0.40	Handfinish - 1 - 1 - B4B	
				Handfinish - 1 - 2 - B4B	
				Handfinish - 1 - 3 - B4B	SEP 04 2019
				Handfinish - 1 - 4 - B4B	
				Handfinish - 1 - 5 - B4B	
				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	
				Handfinish - 1 - 15 - B4B	
				Handfinish - 1 - 16 - B4B	
				Handfinish - 1 - 17 - B4B	
				Handfinish - 1 - 18 - B4B	
				Handfinish - 1 - 19 - B4B	
				Handfinish - 1 - 20 - B4B	
				Handfinish - 1 - 21 - B4B	
				Handfinish - 1 - 22 - B4B	
160 QC 7	1 pcs	12/2/19	0.00 0.00	QC 7 - 10	
				QC 7 - 13	
				QC 7 - 14	
				QC 7 - 15	
				QC 7 - 17	
				QC 7 - 18	
				QC 7 - 19	
				QC 7 - 2	
				QC 7 - 28	
				QC 7 - 3	
				QC 7 - 30	
				QC 7 - 34	
				QC 7 - 36	
				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	7/17/10-1)
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	

170 Packaging 3-1 - Stock - B4B	1 pcs	12/2/19	0.00 0.00	QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - FG	1 pcs	12/2/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	
				QC 21 - FG - 53	

W/19-10-11

DAS
21
9-39

OCT 11 2019

Part Op 100 - 1-Fill tube with sand & install plugs on both ends as per Folio FB298 2-Turn first side as per Folio FB298
 Descriptions: 110 - (QC2- Inspect parts off machine FAI/FAIB)
 120 - 1-Turn second side as per Folio FB298
 130 - (QC2- Inspect parts off machine FAI/FAIB)
 140 - (QC8- Inspect parts - second check)
 145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.
 150 - 1- Handfinish X-TUBE INSIDE AND OUT. ALODINE AND ACID ETCH X-TUBE AS PER DWG USE RED SCOTCH BRITE PAD.
 160 - (QC7-Inspect Chemical Conversion Coat)
 170 - (Identify as per dwg & Stock Location: _____) LOCATION : LG014
 180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6023-106	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	2013837

7/23/2019

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6023-106	1	14	0
Part Specifications				
Specifications could not be found.				

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Container No: S204497



Part: D119-796-241TRN

Job No: 198198

Serial No/Batch: S204497

Revision: K

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 832-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 09/11/19

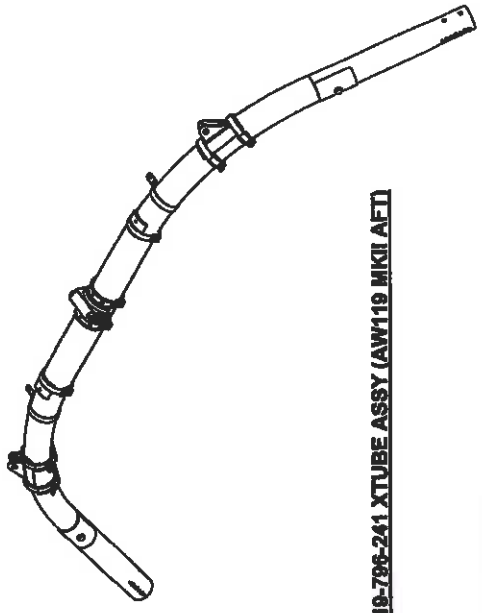
7

DART AEROSPACE LTD		Work Order:	198198
Description: Crosstube Assembly (AW119 MKII Aft)		Part Number:	D119-796-241TRN
Inspection Dwg: D119-796-241 Rev: J K ^{DAS} 35 ₉₋₈₉		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	5.88	+/-0.030	5.880	✓		CNC-08
	2.516	+0.005/-0.000	2.521	✓		CNC-04
	2.626	+0.005/-0.000	2.631	✓		
	2.627	+0.005/-0.000	2.632	✓		
	2.798	+0.005/-0.000	2.803	✓		
	2.799	+0.005/-0.000	2.804	✓		
	2.989	+0.005/-0.000	2.994	✓		
	3.191	+0.005/-0.000	3.196	✓		CNC-05
	3.200	+0.005/-0.000	3.205	✓		"
SIDE B	5.88	+/-0.030	5.886	✓		CNC-08
	2.516	+0.005/-0.000	2.521	✓		CNC-04
	2.626	+0.005/-0.000	2.630	✓		
	2.627	+0.005/-0.000	2.632	✓		
	2.798	+0.005/-0.000	2.803	✓		
	2.799	+0.005/-0.000	2.804	✓		
	2.989	+0.005/-0.000	2.994	✓		
	3.191	+0.005/-0.000	3.196	✓		CNC-05
	3.200	+0.005/-0.000	3.205	✓		"
	105.71	+/-0.020	105.73	✓		tape

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 19818
M-5
19-27-29

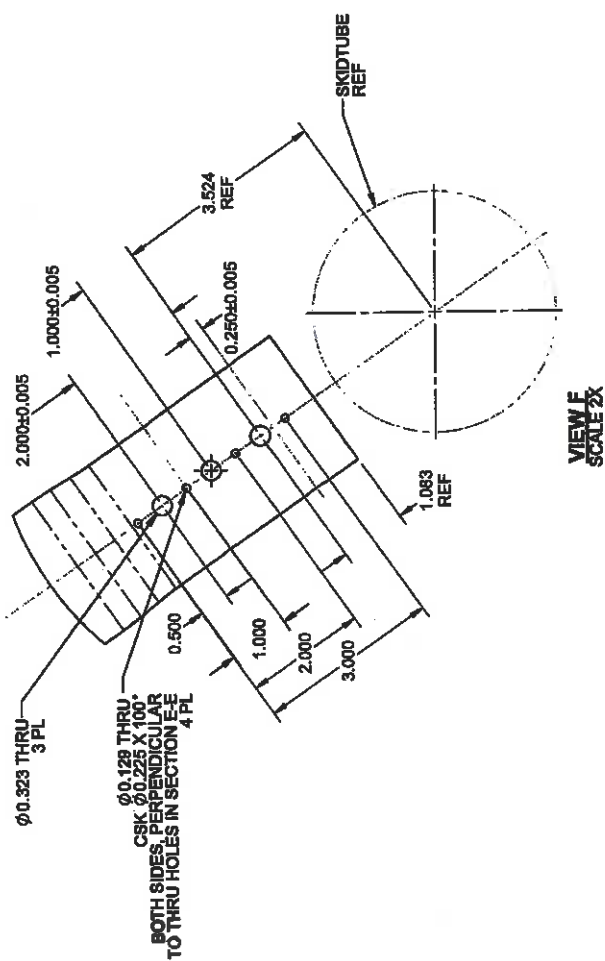
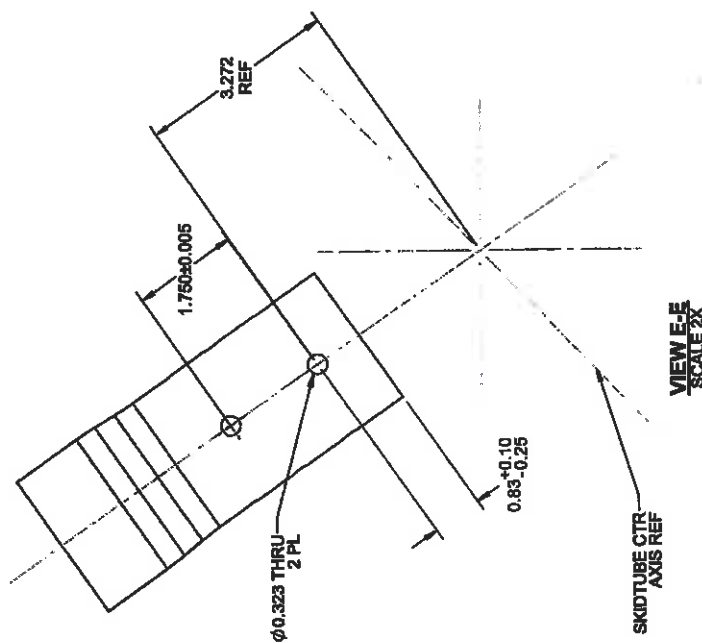


D119-796-241 XTUBE ASSY (AW119 MKII AFT)

- NOTES:
- 1) MATERIAL: N/A
 - 2) FINISH: MASK D5134-041/042 DAMPER SUPPORT ASSEMBLIES, CLIFFS, D5136-1/2 CONTACT PADS, THE COMPLETE CIRCUMFERENCE OF THE TUBE UNDER THE D5122-1 CENTER SUPPORT AND THE TAB ON THE D5615-1 GROUNDING CLAMP PRIOR TO APPLICATION OF CLEAR COAT/PAINT.
 - 3) IF NECESSARY TOUCH UP PRIMER ON OUTSIDE OF CROSSTUBE PER PART QSI 005 4.2
 - 4) APPLY WHITE CLEAR COAT TO THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA) PER QSI 005 4.2.
 - 5) MASK THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA).
 - 6) PAINT OUTSIDE PER PART QSI 006 4.2
 - 7) TOLERANCES: PER PART QSI 018 UNLESS OTHERWISE NOTED
 - 8) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 9) BREAK SHARP EDGES: N/A
 - 10) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-241" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
 - 11) WEIGHT: 28.28 lbs
 - 12) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
 - 13) TAG TO INDICATE D5122-1 CENTER SUPPORT MUST BE BONDED PER IN-D119-796 PRIOR TO FLIGHT".
 - 14) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5136-1/2 AND SURFACE OF CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5136-1/2 CONTACT PADS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL MS21920-26 CLAMPS AND D5123-9 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS.
 - 15) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT HAS NOT BOTTOMED-OUT AFTER TORQUING AND THE NUT IS FACING AFT.
 - 16) PRIOR TO FINISHING, POSITION AND INSTALL D5134-041/042 DAMPER SUPPORTS USING JIG DT10085. ABRASE MATING SURFACES OF THE D5134-041/042 DAMPER SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5134-041/042. INSTALL MS21920-26 CLAMPS AND D5123-1 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS. ENSURE THAT THE MS21920 CLAMPS ARE POSITIONED AS SHOWN IN DETAIL C.
 - 17) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5162-043 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH N' WIPE DEGREASER. INSTALL D5162-043 WITH LAYER OF PROSEAL 880 ON INSIDE CONCAVE SURFACE, 0.100" MIN THK LOCATE D5162-043 USING TOOL DT10112
 - 18) INSTALL THE D5615-1 GROUNDING CLAMP AND ASSOCIATED HARDWARE PER DETAIL "C" PRIOR TO FINISHING. TORQUE THE MS21042-3 NUT 12-15 IN-LB. COMPLETELY SEAL THE CLAMP USING PROSEAL 880.
 - 19) CARRY OUT A RESISTANCE CHECK BETWEEN THE D5615-1 GROUNDING CLAMP AND ANY UNPAINTED SECTION OF THE CROSSTUBE IN ACCORDANCE WITH AC43-13-18 CHAPTER 11. MAXIMUM RESISTANCE IS 3 MILLIOHMS.

UNDER REVIEW
URF 18-796 18.07.04 (SAD)
RELEASED
2019 MAY 07
EOM M-795

K	CHANGE LOCATION AND ORIENTATION OF D8616-1 GROUNDING CLAMP. REF. CAT 16-22Z	MMW	18.09.10
J	ADD NOTE 14 & 16 ON SHIT 1 TO ADD PAINT/PRIMER TO THE BOTTOM OF THE SHIT. TO ADD REWORKING CLAMP AND ASSOCIATED HARDWARE. REF. PAR 17-880	MIL	17.02.10
I	D8023-008 MATERIAL REPLACES D8006-008. D8138-4 & D8143-041-1442 NOW INSTALLED ON PRIMER.	AP	18.10.10
H	NOTE 9 RE-WRITE IT IN. BONDING INSTRUCTIONS MOVED TO I IN. SEE PREVIOUS REV FOR DETAILS.	AP	15.07.02
G	FINISHING ORDER ADJUSTED, UPGRADE BEND TOLERANCE AND TRIN DETAIL TOLERANCE TO MATCH D119-796-141 DWG	AP	15.04.24
F	REMOVED PRIMERPAINT ON CLIFFS. 2.516 WAS 2.500 (C8-5)	AP	15.02.03
E	D5162-043 WAS D8169-3. SCOTCH BRITE 7447 RED WAS 160 GRIT SANDPAPER	DB	15.01.15
D	ADD D8100-3 STEP PORT (2X). MOVED INSPECTION WINDOW DETAIL TO SHIT 1, MODIFIED NOTES ON SH 1 & 3	DB	14.11.29
C	C83212-4-07 RIVETS WAS C83212-4-08 RIVETS. RADIUS BLOCK WAS IN PLATE ASSEMBLY (BOND). REMOVED 7.5 TOLERANCE. ADD INSPECTION WINDOW	AP	14.10.23
B	ORIENTATION OF D121-4 CENTER SUPPORT WAS CHANGED. CONTACT PAIRS. ADDED D871-24AS IN PLATE ASSY & C83212-4-06 RIVETS. ADDED REFERENCE TO BRIDGES FOR LOCKING CLIFF. HOLE. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION.	AP	14.06.08
A	NEW ISSUE	AP	14.08.07
REV.	DESCRIPTION	BY	DATE
DESIGN	AP		
DRAWN	MMW		
CHECKED	ZF		
MFG. APPR.	JFS		
APPROVED	NO		
DE APPR.	CP		
DATE	18.09.19		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. K	SHEET 1 OF 7
DRAWING NO. D119-796-241		SCALE	NFS
TITLE XTUBE ASSY (AW119 MK1 AFT)			
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UNDER REVIEW
URF 19-799 18.07.04 (SAD)

RELEASED

2019 MAY 07 12

DESIGN	AP	DART AEROSPACE LTD
DRAWN	HW	HAWKESBURY, ONTARIO, CANADA
CHECKED	ZF	DRAWING NO.
MFG. APPR.	JFS	REV. K
APPROVED	NO	SHEET 6 OF 7
DE APPR.	CH	SCALE
DATE	18.09.19	NTS
		XTUBE ASSY (AW119 MKII AFT)
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		THIS DOCUMENT IS UNCLASSIFIED DATE 05-01-2001 BY 60322 UCBAW/STP/STP



Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

NCR No. _____

Job: _____

Part No. _____

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐

DEPARTMENT/PROCESS

Cross tube ☐
Small Fab ☐
Finishing ☐
Skid-tube ☐
Machining ☐
Large Fab ☐
Eng. (Non-AW) ☐
Prod. Eng. Coord. ☐
Rec/Store/Packaging ☐
Engineering ☐
Water Jet ☐
Supplier ☐
Quality ☐

Date: _____

Sequence #: _____

QTY Affected: _____

MRB (QS1042)

Description Work Order Deviation

Disposition

Completed By _____

Lead hand / Supervisor _____

QC / QA Coordinator _____

Root Cause

Operator ☐
Manufacturing Process ☐
Equip/Tooling ☐
Handling/Preservation ☐
Material ☐
Product Improvement ☐
Process Improvement ☐
Human Factors ☐

FAULT CATEGORY

Pressure/Forced ☐
Bending ☐
Crushing ☐
Cracks ☐
Crimp/kink/Ripple/Wave/Twist ☐
Marks/Chatter ☐
Mislabeled ☐
Contamination ☐
Misaligned/off center ☐
BOM/Route ☐
Broken/Damage/Defect ☐
Incomplete/Unclear Instructions ☐
Drill Holes ☐
Fit/Function ☐

Power Loss/Surge ☐
Folio/Program ☐
Grain Direction ☐
Weld ☐
Wrong Stock Pulled ☐
Out of Sequence ☐
Off-set/Set-up ☐
Positioned Wrong ☐
Outside Tolerance ☐
Drawing ☐
Finish ☐
Part Lost/Missing ☐
Misread ☐

Other/Details: _____